

Claims

- [c1] 1. A method for controlling a device in an internal combustion engine, comprising the steps of:
determining a value for a parameter responsive to a first operating condition of said engine, said parameter capable of assuming a plurality of values and said plurality of values divided into a plurality of predetermined value ranges;
selecting a control value schedule for said device from among a plurality of control value schedules responsive to said parameter value, each of said plurality of control value schedules corresponding to at least one of said plurality of predetermined value ranges; and,
controlling said device responsive to a control value from said selected control value schedule.
- [c2] 2. The method of claim 1, wherein said device comprises a spark plug.
- [c3] 3. The method of claim 1 wherein said parameter value is determined responsive to said first engine operating condition and a second operating condition of said engine.

- [c4] 4. The method of claim 1 wherein said first engine operating condition comprises engine oil temperature.
- [c5] 5. The method of claim 1 wherein said selecting step includes the substeps of:
identifying a value range from among said plurality of predetermined value ranges responsive to said parameter value; and,
choosing said control value schedule corresponding to said value range.
- [c6] 6. The method of claim 5 wherein said identifying step includes the substeps of:
comparing said parameter value to a threshold value for a first value range;
incrementing a timer value when said parameter value is within said first value range and said parameter value varies from said threshold value by a first predetermined amount; and,
selecting said first value range when said timer value exceeds a predetermined timer value.
- [c7] 7. The method of claim 6 wherein said identifying step further includes the substeps of:
comparing said parameter value to a sum of said threshold value plus a second predetermined amount, said second predetermined amount greater than said first

predetermined amount; and,
performing said comparing, incrementing and selecting substeps for a second value range from among said plurality of predetermined value ranges when said parameter value exceeds said sum.

[c8] 8. A system for controlling a device in an internal combustion engine, comprising:
an electronic control unit configured to determine a value for a parameter responsive to a first operating condition of said engine, said parameter capable of assuming a plurality of values and said plurality of values divided into a plurality of predetermined value ranges, to select a control value schedule for said device from among a plurality of control value schedules responsive to said parameter value, each of said plurality of control value schedules corresponding to at least one of said plurality of predetermined value ranges, and to control said device responsive to a control value from said selected control value schedule.

[c9] 9. The system of claim 8, wherein said device comprises a spark plug.

[c10] 10. The system of claim 8 wherein said parameter value is determined responsive to said first engine operating condition and a second operating condition of said en-

gine.

- [c11] 11. The system of claim 8 wherein said first engine operating condition comprises engine oil temperature.
- [c12] 12. The system of claim 8 wherein said electronic control unit is further configured, in selecting said control value schedule to identify a value range from among said plurality of predetermined value ranges responsive to said parameter value and to choose said control value schedule corresponding to said value range.
- [c13] 13. The system of claim 12 wherein said electronic control unit is further configured, in identifying said value range, to compare said parameter value to a threshold value for a first value range, to increment a timer value when said parameter value is within said first value range and said parameter value varies from said threshold value by a first predetermined amount, and to select said first value range when said timer value exceeds a predetermined timer value.
- [c14] 14. The system of claim 13 wherein said electronic control unit is further configured, in identifying said value range, to compare said parameter value to a sum of said threshold value plus a second predetermined amount, said second predetermined amount greater than said

first predetermined amount, and to perform said comparing, incrementing and selecting for a second value range from among said plurality of predetermined value ranges when said parameter value exceeds said sum.

- [c15] 15. An article of manufacture, comprising:
a computer storage medium having a computer program encoded thereon for controlling a device in an internal combustion engine, said computer program including code for:
determining a value for a parameter responsive to a first operating condition of said engine, said parameter capable of assuming a plurality of values and said plurality of values divided into a plurality of predetermined value ranges;
selecting a control value schedule for said device from among a plurality of control value schedules responsive to said parameter value, each of said plurality of control value schedules corresponding to at least one of said plurality of predetermined value ranges; and,
controlling said device responsive to a control value from said selected control value schedule.

- [c16] 16. The article of manufacture of claim 15 wherein said parameter value is determined responsive to said first engine operating condition and a second operating condition of said engine.

- [c17] 17. The article of manufacture of claim 15, wherein said first engine operating condition comprises engine oil temperature.
- [c18] 18. The article of manufacture of claim 15 wherein said code for selecting a control value includes code for: identifying a value range from among said plurality of predetermined value ranges responsive to said parameter value; and, choosing said control value schedule corresponding to said value range.
- [c19] 19. The article of manufacture of claim 18 wherein said code for identifying a value range includes code for: comparing said parameter value to a threshold value for a first value range; incrementing a timer value when said parameter value is within said first value range and said parameter value varies from said threshold value by a first predetermined amount; and, selecting said first value range when said timer value exceeds a predetermined timer value.
- [c20] 20. The article of manufacture of claim 19 wherein said code for identifying a value range further includes code for:

comparing said parameter value to a sum of said threshold value plus a second predetermined amount, said second predetermined amount greater than said first predetermined amount; and,
performing said comparing, incrementing and selecting substeps for a second value range from among said plurality of predetermined value ranges when said parameter value exceeds said sum.